• *n* *cm* -|~ *bn* • ic , • *n* *cm* -
~ *n* u.i ,-, r

is i(•=- -j --) = — ~ - . while the application of the geometric
* *ml* *Zbm*

mean furnishes A/T- x — = A/T— . [If the quantities employed
\ & m \ Z?W L

be £> in number, the geometric mean would be the *pild* root of the continued product of the *p* ratios.] Presuming in the preceding case that one article has remained unaltered in price (that is, taking the first, *b* = 1 and *c* = 1), while the second article has increased by 100 per cent *(i.e. m* = 1 but *n* = 2), the mean rise

of Jprice by the arithmetic mean would be (y -f- f-)J — — i — =

1J — 1 = J, or 50 per cent, but, by adoption of the geometric mean, the general change would be expressed by */)• x %* — Jl x 1 = \/2 — */!== 1'41 — 1 = -41, or 41 per cent. Professor Jevons, in his investigations into the fall in the v Gold, employed the geometric mean on the ground that it furnished a value midway between that of the arithmetic and harmonic means. Where the quantities (and their changes) examined do not deviate widely from each other, the results of the arithmetic and geometric methods are practically identical. Thus, the arithmetic mean of the closely similar numbers 5, 6, 7 and 8 is 6*5, while the geometric mean is 6*4. But if one or more of the quantities (especially in a series of limited extent) differ substantially from the remainder, the results of the two methods become more and more discrepant. Thus, if we take the series 6, 8 and 20, the arithmetic mean gives 11-33, and the geometric mean of ^6 x 8 x 20 produces about 9 -86. A writer has shown that if the following group of numbers represent the respective levels of price of different commodities expressed as percentages (or Index Numbers) of their values at a previous epoch — namely, 20, 20, 80, B^^OO, 100, 120, 160, 324, 972™-the arithmetic mean is 198 and the geometric, 104. A general examination of the list of

prices which he was considering amply showed that an average rise of 98 per cent was impossible, while an advance of 4 per cent afforded a reasonable and evident approximation. He deduced the tentative rule that where the geometric mean differed appreciably from the arithmetic mean, the former method should be preferred. A concrete illustration relating to the